Notebook, N-06-00-00.3

1 No Co or Ni Res red large H+S brown

2 Trace Co No Ni Res red large H+S colorless

3 No Co or Ni Res red large H+S brown

4 No Co or Ni Res gray large H+S yellow

5 No Co or Ni Res gray large H+S yellow

6 No Co or Ni Res brown large H+S yellow

7 Co 4 Lud No Ni Res gray large H+S colorless

8 No Co or Ni Res gray large H+S colorless

9 Trace Co No Ni Res white large H+S yellow

10 No Co or Ni Res red large H+S colorless

11 No Co or Ni Res gray H+S colorless

12 Co x 12 Lud Some Ni Res gray large H+S little green ~~H+S brown~~

13 No Co or Ni Res grey large H+S colorless

14

wac 15 Trace Co no Ni Res brown large H_2S colorless

wad 16 Co x 3 hud no Ni Res gray large H_2S pink

17

wa 18 Co 100x hud no Ni Res gray large H_2S pink

19 Co 100x hud no Ni Res gray large H_2S pink

20 Co 0.6% no Ni Res gray large H_2S pink

ws 21 Co 20x hud Some Ni Res black large H_2S little pink

pywa 22 Co 0.07% no Ni Res black large H_2S colorless

wa wa 23 Co 0.12 % no Ni Res gray large H_2S little pink

ws wa 24 Co 0.18% no Ni Res black [illegible] H_2S pink

wac wa 25 Co 0.075% no Ni Res black large H_2S colorless

py 26 no Co or Ni Res black large

27 Co 0.33% No Ni Res black large

28 No Co or Ni Res brown large H_2S pink

wad 29 No Co or Ni Res grey large H_2S orange

pyrl 30 No Co or Ni Res black large H_2S [illegible]

pyrl 31 No Co or Ni Res [illegible] large collorless

wad 32 Co 0.015% No Ni Res grey large

wad 33 No Co or Ni Res Red large H_2S collorless

wad 34 Trace Co No Ni Res gray large H_2S collorless

wad 35 Co 0.1% No Ni Res brown large H_2S collorless

36 Trace Co No Ni Res yellow large H_2S collorless

37 No Co or Ni Res gray large H_2S collorless

pyrite 38 No Co or Ni Res gray large H_2S green

39 No Co or Ni Res brown large H_2S gray

40 No Co or Ni Res gray large H_2S green

41 No Co or Ni Res red large, H_2S collorless

42 No Co or Ni Res gray large H_2S collorless

wad 43 No Co or Ni Res brown large H_2S collorless

44 No Co or Ni Res green large H_2S collorless

wad 45 No Co or Ni Res gray large H_2S collorless

wad 46 Co 0.05% No Ni Res gray large H_2S collorless

47 No Co or Ni Res green large H_2S collorless

48 Trace Co No Ni Res gray large H_2S collorless

49 No Co or Ni Res gray large H_2S collorless

50 Co 1.5% Some Ni Res brown large H_2S very pink

51 Co 0.05% No Ni Res gray large H_2S collorless

52 Trace Co No Ni Res brown large H_2S collorless

53 No Co or Ni Res gray large H_2S green

54 No Co or Ni Res gray large H_2S collorless

Speiss from No 1 Car load Glendenning
fused with Reg Copper Wells slag
Crushed 200 mesh roasted till
all sol HCl Conc -

4 Tests:

No 1 50 grms roasted ore 20 CC H_2SO_4 Con
200 CC water -

No 2 Dup Except 22.5 CC H_2SO_4

No 3 Dup Except 25 CC H_2SO_4

No 4 Dup Except 27.5 CC H_2SO_4

After nearly boiling for 6 hours
residue of No 1 weighed 39.750
2 " 38.250
3 37.000
4 37.000

Evidently this batch of ore don't dissolve
well or SO_4 too dilute -

I put the 4 residues together
154 grammes with 115 cc H_2SO_4
+ 560 cc H_2O – *

All these Expmts above vitiated by
using wrong bottle & getting dilute
instead of Conc H_2SO_4 –

* Expmt on dissolving residue have
Conc acid –

Fractional precipn. –
Na_2CO_3 no difference

Sulphite Na No differnc

Arsenate Na – precips Cobalt
+ leaves nickel – possible to
make perfect separation –

Phosphate Soda —

This acts Curious giving all Kinds of precips — Should be investigated —

Tungstate Soda — Curious

Ni alone gives white with greenish tinge Liquor Clear

Cobalt alone pink if I remember right no tinge to filterate,

But if both Co + Ni Sulfates in Sol, The filterate is deep green clear — This is worth investigation,

Chromate K = all precips alike in Color — Dil SO4 - put on precip dis out something & leaves black precip in all funnels — what is it — ? ?

Think the black insol in dilute H_2SO_4 is Nickel —
its sol in HCl dilute & gives green filtrate — The last precip dis in HCl & NH_4 & H_2O_2 added gives strong Cobalt solution —

Tried Mixed sol Co Ni SO_4 — with Boracic acid in excess then precipd in 2 lots by KOH & boiling
1st precipn apparently has the Ni & 2nd the Co — by properly proportioning & long boiling & reboiling 1st precip probably Ni can be got free from Co
This looks OK —

The best separation (ie Comcl) ~~[illegible]~~ of Ni from Co is by crystalizg the Ni as Ni ammon sulphate & leaving Co in solution & then Recrystalizg 2 or more times —

1) 37.750

200.000
37.740
162.26

Expmt -

200 grms Car 1 - Ore treated HCl des lime - roasted = residue 325 grms — Used 200 CC 1.8 SG H_2SO_4 Cook 16 hours hot plate & evap when filtered - residue dried & heated so most SO_3 come off - not fully as used Evap dish dry flame right on bottom = Weight 37.740 grm 162.26 grms dissolved - Think if all SO_3 driven off probably residue be 30 or less grms

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Boiled above residue in Water - faint trace Silver came out some Co & Fe only trace Co however/

This makes	1000	grms Orig
	670	after Lime out
	325	Roasted
	55	Residue

I now while ~~ore~~ Residue is wet put in 30 CC Conc HNO_3 & add 10 or 15 cc H_2O & heat - no Cobalt & very little Fe if any come out - Some Silver shows

A W Gemmill
The Anglo French Nickel Co Lt
Hafod Isha Works
Swansea England

Says gets Wad from New Caledonia

100 fr for 4 1/2 % ore (CoO – 7 grms 78.4 metal)

4 francs increase for each tenth of a unit up to 5%

over 5% 5 francs per tenth of a unit.

Best man at Noumea is

Thos Manning
Noumea
N Caledonia

for 4 1/2 % of oxide CoO – 28.3 cents Noumea
with frt $16 ny 36.8 cents,
40 cents lb CoO for [illegible] up to 5% or 50 cents lb extra above 5% —

After H_2O & HNO_3 exhaustion residue weighs 29.370 grms its whitish

Weight after $CoSO_4$ residue roasted 1/2 hour ~~[illegible]~~ red heat weighed 270 grammes —

After exhaustion with boiling water & about 10 cc H_2SO_4 ~~[illegible]~~.
Weight residue 43 grammes,
Showing that 227 grammes went into solution,

Took 10 grms of the dried 43 grm & boiled in water no Cobalt came out, it dis in Dilute H_2SO_4 — Lots arsenic comes out with HS —
Apparently no Ag in it —
Full of Bismuth, I guess Bi stays in it,

1st
10 grms of Residue from dis in H_2SO_4 has very little Co & no As_2O_3 has a black HS precip which prob Copper —

The 43 grms not water sol after $CoSO_4$ leached out Contains Considerable Co — 10 grms gives Evap dish brn full NH_4 sol deep yellow red —

Roasted this to yellow heat + scarcely a trace of arsenic left, Was thrown out by HS —

This show Arsenite Fe can be fully roasted to Fe_2O_3 + As driven off —

Balbachs Terms

Ore running 400 oz Ag per ton Smelting chg		$6.00
400@500	"	5.00
500@600	"	4.00
600@700	"	3.00
700@800	"	2.00
800+over no chg —		

Settlement to be based on assay of Ledoux & Co. Weight & Moisture as found on our works in presence of Ledoux & Co representative to be taken & 93% of the Ag contents to be paid for at refined price for Ag ruling on day of receipt of Lot Cos assay Certificate showing our lots & moisture Settlement 14 days after date of each assay Cert or Cash less 1% — Delivd F.o.b Newark works

Balbach S&Refg Co